



Frontier Economies in the Roman Empire

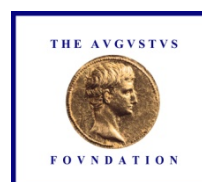
Oxford Roman Economy Project Conference
19-20 September 2019

The Old Library, All Souls College, University of Oxford

This conference aims to bring together specialists in Roman frontiers and economic history to discuss new evidence and approaches to studying the economic life of border regions around the Roman world. While economic life has never featured heavily in studies of Roman frontier regions, economic studies of the Roman Empire have tended to focus mostly on Mediterranean regions. This split in research agendas has created a model of economic geography in the Roman Empire that is very much based in out-dated core-periphery models of interaction, where an economically-successful core region was forced to support frontier regions through surplus redistribution by the state. This model fails to accommodate the ever-expanding body of archaeological and historical material that highlights both chronological and geographical variability in frontier economies, and we feel that it is time to discuss new ideas that may move the discussion forward into a better-integrated and more dynamic economic history.

This conference is generously supported by the Faculty of Classics, University of Oxford, All Souls College, the Augustus Foundation, and the Society for the Promotion of Roman Studies. There is no conference fee, but to help us estimate numbers for tea and coffee those who wish to attend are asked to register by emailing OXREP.frontiers@gmail.com.

Tyler Franconi
Andrew Wilson



Thursday, 19 September				
Session 1: The role of the State				
09:15	09:30	A. Wilson	Oxford	Introduction
09:30	10:15	T. Franconi	Brown	The economic lives of Roman frontiers: old models and new data
10:15	11:00	P. Erdkamp	Brussels	The role of the state in the market integration in the West
11:00	11:30	Coffee		
Session 2: Resource exploitation				
11:30	12:15	A. Hirt	Liverpool	Mining and 'frontiers'. Extractive Operations in Roman Spain.
12:15	13:00	A. Dalla Rosa	Bordeaux	Imperial land, forests and workshops in the Danubian region: acquisition, distribution and economic roles
13:00	14:00	Lunch		
Session 3: Britain				
14:00	14:45	I. Haynes	Newcastle	Characterising and quantifying frontier economies: Some methodological considerations
14:45	15:30	D. Breeze	Edinburgh	Civilians and traders on Hadrian's Wall
15:30	16:15	L. Lodwick	Oxford	The economic organisation of cereal production in Britannia: new evidence from crop stable isotope analysis and grain-drying ovens
16:15	16:45	Tea		
Session 4: Germany				
16:45	17:30	M. Brüggler	Xanten	Agriculture in the Lower Rhine Plain - Production for a sustainable frontier?
17:30	18:15	B. Hellings	Yale	Big data: monetizing the Roman frontier

Friday, 20 September				
Session 5: The Danube				
09:30	10:15	O. Láng	Budapest	Stop-shop: trading activity in the Aquincum Civil Town
10:15	11:00	I. Oltean and C. Ciongradi	Exeter and Cluj-Napoca	A matter of finances - the archaeological evidence from the praetorium procuratoris at Sarmizegetusa Ulpia (Dacia)
11:00	11:30	Coffee		
Session 6: The East				
11:30	12:15	S. James	Leicester	Parasite, benefactor or...? Impact of the imperial garrison on the civic economy of Dura-Europos, Syria, c.AD165-c.256
12:15	13:00	R. Palermo	Groningen	An Imperial Steppe: Space, Demography, and Economy in Roman Period Eastern Syria and Mesopotamia
13:00	14:00	Lunch		
Session 7: Egypt and North Africa				
14:00	14:45	D. Mattingly	Leicester	What Lay Beyond: The Economic Relations of the African Frontiers and the Sahara
14:45	15:30	M. Gibbs	Winnipeg	The economy on the southern Roman Egyptian frontier: Talmis and Kertassi during the Roman period
15:30	16:00	Tea		
Session 7: The Red Sea and beyond				
16:00	16:45	J.-P. Brun	Paris	The Eastern desert of Egypt as a resource and as a link with Indian Ocean during the Graeco-Roman period
16:45	17:30	D. Nappo	Naples	India: the missing province
17:30	18:15	E. Fentress	Rome	Discussion

1 - *The economic lives of Roman frontiers: old models and new data*

Tyler Franconi, Brown University

2 - *The role of the state in the market integration in the West*

Paul Erdkamp, Vrij Universiteit Brussel

There has been much debate recently about the role of the state in determining economic performance in the Roman Empire. Some scholars, such as Carrié and Lavan, have rejected state-induced models of the economy. While the importance of commercial channels cannot be denied, it will be argued that the state played a crucial role in the emergence of a transregional commercial network in the West. This role is not limited to the provisioning of Mediterranean and regional goods, with commercial goods riding piggy-back to the army camps and adjacent civilian settlements. As a side-effect, the command economy strengthened the commercial sector and increased market integration. The traders and shippers involved in this network organized themselves in order to deal with the authorities and to reduce their transaction costs. The state-induced supply-network not only stimulated market integration through the movement of ships and its infrastructure, but also through the connections and communication it provided. The merchants and shippers that were involved each in part of the supply-chain stimulated communication throughout this wider region. Since information and communication are as important to market integration as roads or harbour facilities, the state contributed to creating the circumstances needed to increase the economic performance in this part of the Roman world. However, the vital role of state-induced connectivity also meant that market integration did not reach the same levels everywhere, and that the effects on the wider economy were therefore also uneven.

3 - *Mining and 'Frontiers': Extractive Operations in Roman Spain*

Alfred M. Hirt, University of Liverpool

This paper addresses the issue of the role of mining in the social and economic integration of a 'frontier', a concept devised by Frederick Jackson Turner in 1893. This concept has been decontextualised and developed further to encompass comparable processes throughout the world of land grabbing and exploitation of natural resources. 'Frontier' is not understood to be a definable physical zone between two political or social entities: Turner had already thought of 'mining frontiers' as a distinct category (with Jürgen Osterhammel suggesting 'resource-extraction frontiers') and, more recently, 'frontier of settlement' has been used in terms of claiming agricultural land or the extraction of valuable resources from the wilderness on the periphery of settled and developed land.

This paper proposes to re-examine the literary, epigraphic and archaeological evidence for 'mining frontiers' in the Roman West and their role within the socio-political and economic integration with a special focus on the Iberian Peninsula.

4 - Imperial land, forests and workshops in the Danubian region: acquisition, distribution and economic role

Alberto Dalla Rosa, Université Bordeaux-Montaigne

Mining was undoubtedly one of the most important economic activities controlled by the state in the Danubian region, whether operated directly by the *fiscus* or contracted out to private entrepreneurs. From Augustus onward, however, Roman rulers began to acquire all sorts of properties in the Danubian provinces, such as land, forests and workshops producing bricks or amphorae. The geography and the economy of these properties are still difficult to reconstruct, owing to the lack of regional studies focussing on this topic. This paper will draw on the preliminary results of the systematic survey of the imperial properties realized by the ERC PATRIMONIVM project in order to present a clearer overview of the distribution of the properties and of their chronology. This will allow for a series of reflections on the economic role of these possessions and, ultimately, on the reasons behind their acquisition. This will also lead us to reassess our assumptions on the weight of the *fiscus* in the economy in this sparsely urbanized and heavily militarized region.

5 - Characterising and quantifying frontier economies: Some methodological considerations

Ian Haynes, University of Newcastle

This paper draws on recent field research in and around Hadrian's Wall to examine both the potential for and the problems inherent in seeking to quantify frontier economies. It begins with a brief reflection on the challenges in calculating the costs involved in constructing and maintaining the Wall and associated infrastructure. New work related to questions of stone supply will be considered, as will current thinking on the scale of the works themselves. Thereafter the discussion moves to an examination of key themes in the supply and sustenance of the Wall garrison and the ways this changed over time. Here progress in environmental archaeological analysis must be set alongside reappraisals of ceramic and numismatic data. An enduring challenge remains establishing the relative importance of longer distance supply networks, particularly those facilitated by sea, and local supply. Alongside the question of materials, questions remain about the human resource, the provision of manpower for units stationed across central Britain.

All these themes must in turn be considered in the light of their impact on local economies and the populations north and south of the Wall corridor. Work over the last few decades has led to substantial advances in our understanding of shifting settlement patterns, the degree of variation that existed across the frontier zone, and the use and reuse of materials. The paper concludes by reflecting on the economic dimension of some of these developments and outlining fertile directions for further research.

6 - Civilians and traders on Hadrian's Wall

David Breeze, Edinburgh

In recent years geophysics has revolutionised our knowledge of settlements outside the forts along Hadrian's Wall. In some cases, these settlements are significantly larger than the forts. Little excavation, however, has taken place at any of these sites, so we know little of what happened in them. This revolution has run parallel to a re-think of the relationship between soldiers and civilians. The fort wall is no longer seen as a major divide, with evidence for women in forts and soldiers outside. Excavations in a dozen settlements outside forts on the Wall and its hinterland have revealed that they came to an end towards the end of the third century. We do not know why the settlements ended or where their inhabitants went. We can guess that the change in soldiers' remuneration from cash to payment in kind may have played a part in reducing their spending power, resulting in fewer traders, slaves and other inhabitants, but there are other possibilities. The fact that the phenomenon has been recognised in towns along the Middle Danube emphasises that the British experience should be viewed in a wider context.

Fifty or so years later, in the middle years of the fourth century, another development has been recognised on Hadrian's Wall, the incidence of small coins in four forts interpreted as evidence for trading. But where did the traders come from; and what happened between the 270s and the 340s? What might have been the role of towns such as Carlisle, Corbridge and Catterick?

7 - The economic organisation of cereal production in Britannia: new evidence from crop stable isotope analysis and grain-drying ovens

Lisa Lodwick, University of Oxford

Cereal production in the frontier province of Roman Britain has been marginal to empire-wide discussions of the Roman agricultural economy. Patchy written evidence, and now vast quantities of excavation data from farmsteads provide convincing evidence of a substantial cereal economy through the widespread occurrence of granaries, tools, quern- and millstones, and archaeobotanical evidence for cereals. Currently lacking is an understanding of the intensity of labour involved in cereal production, the scale of cereal production within and between sites and regions and an understanding of the articulation of flows of cereals between fields, processing centres and consumers. This paper presents two new datasets for assessing cereal production – isotopic analysis of archaeobotanical data and quantitative analysis of agricultural processing structures.

First, an investigation of crop husbandry practices through crop isotope analysis. The technique of crop stable isotope analysis assesses the ratio of nitrogen ^{14/15} in charred cereal grains as an indicator of manuring activity, which can be used as a proxy for the intensity of agricultural labour. Results will be presented from two Iron Age – Roman case study sites from two regions of large-scale cereal production - the Nene Valley and the Hampshire downlands, both indicating a movement towards labour-extensive cereal cultivation practices by the Late Roman period.

Secondly, an investigation of crop-processing practices through grain-drying ovens, substantial structures for the processing of cereals for flour or malt which are ubiquitous throughout Britain and the north-western provinces. The emerging picture indicates labour extensive crop husbandry practices combined with labour-intensive processing, particularly at farmsteads integrated into the road network where multi-dryer installations occurred. Overall, these combined datasets indicate the substantial production of large-cereal surpluses in central-southern Britain, in order to supply the military and urban populations within Britain, quickly replacing the initial need to import cereals from the continent.

8 - Agriculture in the Lower Rhine Plain – Production for a sustainable frontier?

Marion Brüggler, LVR-Amt für Denkmalpflege im Rheinland

On the Lower Rhine Plain the population concentration in the military installations and the towns along the river stands vis-à-vis a rather sparsely settled countryside — a non-villa landscape, dominated by loamy and sandy soils, with people living in byre-houses. Yet in the later 1st and 2nd century CE a rise in prosperity can be discerned in the rural hinterland: More settlements were established, the byre-houses grew considerably in size and more products from provincial Roman workshops arrived at the settlements. Even though the landscape still cannot be described as one of wealth, since luxury-items and stone-buildings are lacking, the increase in wealth proves a certain extent of integration into the provincial economy. But what did the rural population produce and would there have been enough of it to sustain the population along the *limes*-zone? The area of investigation is roughly the hinterland of the Lower Rhine *limes* before its bifurcation, i.e. mostly within modern Germany. It corresponds largely with the *civitas* of the Cugerni and directly adjacent areas. The region has been described as infertile, not allowing crop-cultivation beyond self-sufficiency. However, it has recently been shown that about a quarter of the soils were of a quality sufficient for growing demanding crops such as spelt. A model devised by Laura Kooistra and Mareike van Dinter for the Rhine Delta is adapted to the data of the research area in order to calculate if the rural population would theoretically have been able to sustain the consuming population within the *limes*-zone with cereals and cattle products. Whether the hinterland actually contributed to the supply of this part of the frontier is another question.

9 - Big data: monetizing the Roman frontier

Ben Hellings, Yale University

Most regional or Empire-wide studies of the Roman monetary economy rely heavily on one type of coin find. Hoards are most frequently employed, with only occasional reference to several prominent sites as way of example with almost no regard to 'stray' finds. The important role of archaeological numismatics is increasingly recognized and has started to reshape our thinking and approach, but studies rarely utilize the full breadth of numismatic evidence. Big data employing all types of coin

finds have the potential to re-evaluate our approach, and in Britain, the Portable Antiquities Scheme has demonstrated its capability to refine our perception of coin use across a large geographic area over the *longue durée*.

One of the most challenging aspects working with coin finds from a frontier zone is the natural association made between Roman conquest and monetization; an association that has perpetuated a model of immediate and widespread adoption of coinage resulting in a monetized economy. Using a macro-regional perspective, this paper utilizes a comprehensive dataset of coin finds from the Rhine frontier in order to reconsider the impact and role of the military on the development of monetary economy during the first century

10 - Stop-shop: trading activity in the Aquincum Civil Town

Orsolya Láng, Aquincum Museum

The Aquincum Civil Town has been the subject of constant archaeological research for the past nearly 130 years. These excavations have brought to light nearly half of the settlement dated from the last quarter of the 1st to the end of the 3rd c. AD. These researches also brought to light numerous *tabernae* – or rooms that were previously considered to be shops or workshops – leading to different ideas on the economic and commercial activity of the town.

Recent works (both control excavations and revaluation of the old excavation documentations) on *tabernae* – particularly on their periodization and the finds discovered in them – and the tholos-type *macellum* have shed some light on the function and economic importance of these shops while also raising new questions on their architectural form, location and role in the economic life of the provincial capital. The aim of this paper is to examine these buildings – and the rooms previously considered to be shops – to find out more about the above-mentioned aspects.

11 - A matter of finances - the archaeological evidence from the praetorium procuratoris at Sarmizegetusa Ulpia (Dacia)

Ioana Oltean, University of Exeter, and Carmen Ciongradi, National Museum of Transylvanian History, Cluj-Napoca

The expansion of the Roman Empire into neighbouring territories is usually seen in modern scholarship as politically or strategically motivated while the economic underpinning of Roman imperialism is severely downplayed. Through their requirement to pay local troops, army-heavy frontier provinces like Dacia are considered as tax-consumers rather than genuine contributors to imperial wealth (e.g. Hopkins 1980, 1996), even though important contributions to the imperial income came from the frontier provinces as tax, army recruitment or the exploitation of local natural resources. The general process was overseen and controlled at provincial level by a *procurator* who in Dacia resided at Sarmizegetusa Ulpia. The *praetorium* has been positively identified based on epigraphic evidence (Piso 1998) coming from earlier partial excavations during the 1980s. This paper will

present an overview of current knowledge on the site including initial results from the more recent excavations in 2015-17 by a team led by Dr Carmen Ciongradi (Cluj Napoca) and the author.

12 - Parasite, benefactor or...? Impact of the imperial garrison on the civic economy of Dura-Europos, Syria, c.AD165-c.256

Simon James, University of Leicester

Around AD 165 Greco-Syrian Dura-Europos on the Euphrates passed from Parthian to Roman rule, the city subsequently receiving an imperial military garrison. Rich archaeological and textual testimony survives for Roman Dura-Europos, owing to its violent destruction by a Sasanian siege c. AD 256 and subsequent abandonment. Excavations from 1928-1937 saw Dura proclaimed 'the Pompeii of the East'. Further exploration from 1986-2011 included a study of the garrison and base by the speaker.

Dura provides us with an exceptional dataset for examining direct military : civilian interactions in an imperial urban environment, one revealing the relatively understudied eastern frontier. However, views on the consequences of implantation of the Roman garrison for the life and economy of Dura have varied drastically.

Rostovtzeff, father of the original Dura project, saw the coming of imperial troops as an unmitigated disaster for an outpost of Hellenism in a Semitic world, soldierly brutality and arbitrary exactions reducing the *polis* to an impoverished village. Recent commentators, especially German scholars such as Stoll, Sommer, and Ruffing, have tended towards a polar opposite view. Highlighting imperial policy of promoting *concordia/homonoia* between cities and garrisons, and noting indications of urban development at Dura, rather than decline a military-driven economic boom is postulated, albeit violently cut short by war.

However, interpretation has been hampered by incomplete publication of the excavations. The new study of military garrison and base challenges assumptions underlying previous discourse about the economy of Roman Dura-Europos, especially that there was a relatively small enclave of soldiers among a far larger civil population. Rather, the garrison was much larger than hitherto understood, and equally importantly, was the core of an 'extended military community' which constituted a virtual second city within the city. What were the economic consequences of this? What really were the social and economic dynamics of Roman Dura-Europos?

13 - An Imperial Steppe: Space, Demography, and Economy in Roman Period Eastern Syria and Mesopotamia

Rocco Palermo, University of Groningen

Borderlands are regions of continuous and changing negotiations. The edges of the Roman Empire, in particular, are a multi-variegated system where environmental, material, social, and economic realities are shaped accordingly. From an archaeological perspective the presence in imperial frontier areas of objects and

materiality related to both the core and the external space of the empire makes such zones incredibly interesting when it comes to exploring demographic trends, economic mechanisms, and processes of intra-societal interaction. Indeed, all these phenomena are usually more visible on the peripheries of a wider socio-political system, and this is the case of the eastern borderland of the Roman Empire, between Eastern Syria and Mesopotamia. The geographic reality of such a specific frontier zone, its permeability, and fluctuation have always had a substantial impact in the ways different agents did perceive the borderland and reacted to its socio-cultural context.

The large region that encompasses the Syrian Desert, the area beyond the Euphrates, Mesopotamia, was never fully integrated into the Roman world, retaining its very own characteristics, always balancing its position between trans-regional polities and local communities, and yet acting as a buffer zone within the intra-imperial confrontation.

In my paper I will propose a model for the quantification of economic indicators by means of landscape archaeology. I will then explore the socio-economic impact of Rome at the eastern edge of the Empire and the consequent relation with local communities and other imperial entities (i.e. Parthians and Sasanians), through the analysis of patterns of settlements and mobility, reconstruction of past population trends and cycles of economic growth/decline in the steppe-lands of Syria and Mesopotamia in the period between the 1st and the 4th c. CE.

14 - What Lay Beyond: The Economic Relations of the African Frontiers and the Sahara

David Mattingly, University of Leicester

The starting assumption of many previous studies of the Roman frontiers of North Africa is that they were intimately bound up with economic transformation of the frontier zone, frequently desert, and of its populations, generally assumed to have been pastoral. Recent work on the archaeology of the Saharan zone suggests a more complex and nuanced picture in which indigenous societies played a far bigger role in generating economic changes and where the frontier is not a crucial starting point but rather the focus of long-term sequences shifting economic contacts and networks. The paper will reflect on three specific case studies: the changing nature of Saharan societies from c. 500 BC to AD 500 (in particular the increase of sedentary farming) and how our knowledge of frontier development fits with this; the involvement of pre-desert and desert communities in military supply; the wider interaction of the frontier with Saharan trade networks.

15- The economy on the southern Roman Egyptian frontier: Talmis and Kertassi during the Roman period

Matt Gibbs, University of Winnipeg

The evidence at the sites of Talmis and Kertassi offers a vivid picture of the cultural identity of the visitors and inhabitants (including, of course, the Roman military) of the region. It also provides an opportunity not only to consider the workers and visitors to this region, but also to compare these two sites situated on the southern frontiers of the Roman world.

Talmis (modern Kalabsha), fifty kilometres south of the first cataract, was a Roman garrison town, and the site of a temple to Mandoulis, a Nubian deity equated with Apollo. The purpose of the temple itself in the Roman period seems to have been political, offering a place in which the nomads and the Roman military could worship. The walls of this temple contain an array of inscriptions bearing the names of the Roman soldiers stationed locally as well as the pilgrims who visited the area. By way of comparison, thirty kilometres to the south of Aswan is the site of Kertassi. The community included an extensive quarry complex, a small temple, and perhaps, a Roman military encampment. The quarries themselves lie to the north, west, and south of the temple, and therein are a significant number of inscriptions that date to the mid-second to the mid-third centuries CE, including a substantial corpus of evidence that appears to refer to an association of workers engaged in the transportation of quarried stone.

Using this evidence, and through the lens of these communities, this paper will consider the movement and mobility of the traders who worked in and visited these two communities, while considering what their activities—recorded in their inscription—can tell us about the economy at the southern edge of the Roman Empire.

16 - The Eastern desert of Egypt as a resource and as a link with the Indian Ocean during the Graeco-Roman period

Jean-Pierre Brun, Collège de France

The exploitation of the Eastern desert of Egypt and the development of the Erithrean trade from the Macedonian conquest of Egypt to the end of the Roman Empire was conditioned by the harsh natural conditions of this area and by the wind patterns.

The entire period from the 4th c. BC to the 7th c. AD could be divided into ten phases. The first corresponds to a gold rush under Ptolemy 1st. The second phase, which covers the last three quarters of the 3rd c. BC, is the period of hunting for war elephants, leading to the foundation of many ports along the western shore of the Red Sea and to the opening of routes through the desert, from these ports to Apollonopolis hè Megalè (Edfu) and to Koptos (Qift).

The 3rd phase is marked by the revolt of the Upper Egypt between 206 BC and roughly the 2nd quarter of the 2nd c. BC, during which this area was no longer controlled by the Greek kings. The 4th phase is characterised by the development of

the trade of exotic products, mainly myrrh, incense and other aromatics and gems, during the 2nd-1st c BC.

The 5th phase began with the Roman grip on Egypt. We can trace the extraordinary growth of the trade with Arabia and India and the beginning of exploitation of porphyry and granite quarries for the imperial buildings at Rome. The 6th phase led to the total control of the desert, the maximisation of the exploitation of the quarries and a peak of the trade with Orient which reached Malaysia and beyond from the last quarter of the 1st century AD to the beginning of the 3rd century AD.

Then followed a gradual decline marked by the withdrawal of the Roman army from the two main routes to the Red Sea harbours: the route of Myos Hormos first (7th phase), then the route of Berenikè followed by the revolt of the nomadic tribes of the desert during the last quarter of the 3rd c. AD (8th phase).

The oriental trade revived during the 4th and 5th c. and Berenikè was reoccupied (9th phase), but the final decline occurred during the 6th and 7th c. (10th phase).

17 - India: the missing province

Dario Nappo, University of Naples "Federico II"

The Roman Empire had a very limited military and political control over the Red Sea/Indian Ocean region, but this area was nevertheless considered a key space for the economic interests of the Roman Commonwealth. India had a very peculiar status in the context of the imperial *Weltanschauung*: it was clearly not just out of the limits of the Empire, it was far away from it, and yet it was constantly present in the imperial propaganda. Despite its remote position, India was at the same time considered as a legitimate part of the economic space of the Roman Empire.

This peculiar feature made India a rather unique area of the World, both inside the Roman economic space and outside its political sphere of influence. This contradiction is particularly evident in some moments of the Roman History, for instance the principate of Augustus, when India is depicted almost as one of the provinces of the Empire. This ambiguous status originates from the importance that Indo-Roman trade had for the economy of the Empire. Since the time of Augustus, there were several attempts to secure the maritime route between the Mediterranean Sea and the Indian Ocean.

This paper aims at underlining the relationship between Roman military presence and economic influence in the Red Sea/Indian Ocean area in the first two centuries of the imperial age, trying to reconstruct the different political approaches that Roman rulers had to securing the control of such a crucial area for the international trade.

18 – Final Discussion

Lisa Fentress, Rome